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Dedicatory Introduction

My dear Thea,

Here at last is your book. At least I hope it is your book, because it has been through so many rewritings that you may no longer recognize it. My hope is, nevertheless, that it will give you at least some of the answers, or details, or views, or ideas, that were in your mind when you urged me to persevere with it, despite my endless feelings of discouragement.

And it has remained ever after 'Thea's orchestra book' because the title has been a virtually insoluble problem. In the event the one it bears was the inspiration of Barrie Iliffe, who like yourself has been enormously helpful and encouraging. He has, moreover, read the typescript section by section and produced many excellent (and often hilarious) comments and suggested corrections.

I was grateful that Barrie proposed a satisfactory title because the reason for my difficulty in finding one was bound up with the very fact that I have never been able to explain to any of my interested friends just exactly what the book was about. The only thing I felt clear about was that no such book existed so far, a state of affairs repeatedly apparent when I went to the local library to search for details or verification of material, only to come away saying to myself, 'Of course I can't find it; I keep forgetting, it doesn't yet exist'—which also explains, of course, the absence of a bibliography even though I do occasionally mention some specialist book which I possess or have consulted.

This then has been my motivation for writing, against what I often felt to be my better judgement. For I know only too well that not only can the book never be complete, but also that it can never be completely correct or up to date. As I open the scores of my own library, often at random, or study a new work for my next conducting

assignment, further exceptions or contradictions or additions to something I have said, stare me in the face, and I wonder how (or whether) I should find a place for them. Ultimately I fully accept that in allowing my work to be published I expose myself to colleagues and experts refuting something I have said, or charging me with omitting some vital piece of information, or (most likely of all) insisting that my view of the state of the orchestral world vis-à-vis one or other instrument or some aspect of professional practice is not true of all countries, or is no longer true in Britain. If this does happen, let me state here and now that I shall not be chagrined, but highly interested and delighted.

For there is no escape: to question every one of my countless associates on point after point would not only be a hopelessly long drawn out process, but would also land me in precisely the quicksands of over-specialization that it has been my constant vigilance to avoid as outside my terms of reference. The very viewpoint of this book is and must remain opposed to each and every specialist, even over points of fact. For often enough the truth is less important than what some composer believed to be the truth, or meant when he was actually ignorant of the whole truth. Hence my percussion section is, for example, absolutely not in competition with James Blades's masterly compendium¹, for Jimmy and books like his really do give the truth in every specialized and historical detail, whereas this is not a book of instruments, nor of instrumentation, nor of orchestration, though some elements of all of these inevitably intrude.

The hardest task has been to decide at each stage as much what to omit as what has got to be said in the sheer interests of intelligibility. At one point it even seemed necessary to state that the instruments of the string orchestra are normally played with the hairs of the bow. Unless I somehow planted this commonplace it seemed impossible to get to the point of discussing Mahler's daring in prescribing a legato style of bowing with the wooden back, and so progress towards the extraordinary techniques to be found in Berg's *Lyric Suite*, techniques nowhere mentioned in conventional books of orchestration.

If this is not a book of orchestration, one of the most important differences seems to me to lie in the angle of approach. Its purpose has never been in the smallest degree to advise the student how to write for the orchestra; my interest lies the opposite way round—from the point of view of either the performer or the score-reader, especially the

¹ *Percussion Instruments and their History*, Faber, London, 1970.

conductor, who wants to know what the composer meant, thought he meant, or even maybe should—in my opinion—have meant. And in the course of this I hope I have unravelled at least some of the confusions and contradictions which occur in almost every score—whether over the matter of the notation of string harmonics, what tuba really plays ‘Bydlo’ in the Mussorgsky/Ravel *Pictures from an Exhibition* as well as the transposing B♭ tuba of Bax’s *Overture to a Picaresque Comedy*, or what the harpist thinks Mahler meant when he wrote ‘Mediator’ against certain notes; for none of these problems can be solved through recourse to any available reference books or textbooks of orchestration.

I have also included other aspects of orchestral practice, whether public—such as platform presentation; or theoretical—as the confusingly different ways composers lay out the arrangements of instruments in the score, so that it is by no means always possible for a conductor to pick up the score of any work and obtain an instinctive impression of the sound at a glance.

Yet at the same time the idiosyncratic style of a composer’s layout should not be interfered with, as it may also have a value of comprehension and background. As you know, Thea, I hate scores to be presented with all the transposing instruments rewritten to appear at actual pitch. This can cause waste of time at rehearsal as well as impediments of reading, since the parts of instruments such as piccolos or horns then appear quite differently to the score-reader (or again conductor) from the way they do to the player, and so give a false impression of the sound and technical aspect. Yet a score of Prokofiev (who habitually wrote all his scores in C throughout) set out in the usual way with clarinets, horns and trumpets conventionally notated, looks curiously odd; see, for example, the Second Piano Concerto.

This leads me to a question I have been repeatedly asked: who am I addressing? And to this I have no straightforward answer; naturally I am to some extent addressing you, Thea; it has been suggested —by the clarinettist Colin Bradbury—that I might be addressing the string chapter to him, and the wind chapter to the violinist Eli Goren; while Barrie Iliffe and others have indicated that although the sheer technicality of some parts suggests that it is surely aimed at the composer/performer fraternity, a great deal of it will be of absorbing interest to the concert goer. Gratifying as this would undeniably be, I cannot accept the credit for this being my intention and purpose in writing

the book which is, I must confess, a compendium of the things that interest me, which I have failed to find elsewhere, and in which I have a yen to interest others, whosoever they may be. Some of these things are of quite a general nature, applicable to all the orchestral sections equally like the notation symbols which I discuss in my closing quasi-appendix section.

There are many more subjects of this kind or others parallel; I could perhaps have tried to cover them all, or as many as I could think of—such as, for example, some of the controversial tempo markings—the difference between ‘rit.’, when it might indicate ‘ritenuto’, and ‘rall.’, this latter always a gradual process—the meaning of *Andantino*, the exact opposite when Mozart uses it to the meaning attributed to it by Tchaikovsky—the true significance of *Largo*, usually but by no means necessarily a slow mark—and so on; but these all really belong to another book, and to one not primarily concerned with the orchestra.

Yet such details are constantly in dispute during orchestral work because of what is commonly described as the imperfections of our musical notation. Nor is this as bad as it is so often made out to be. The flexibility and hidden variations of meaning implicit in different points of view would be largely destroyed if music were a science capable of being set down with absolute precision. Interpretation would cease to exist, and the tape-recorder/synthesizer milieu would finally triumph. Already players often consider that in contemporary music they are less and less expected to exercise their artistry and individuality, since either they are required to work to a mathematical exactness to which only a computer could hope to do justice, or, on the contrary, given a freedom of choice that makes nonsense of their *métier*, which is the sheer business of getting the notes, which are on the stand in front of them, right. This question of correctness is crucial; an orchestral musician is outraged if for any reason at all it can be shown not to matter. Such a suggestion strikes at the root of his whole training and consequentially the ethic by which he works and lives. Players will discuss amongst themselves, or hotly and at length with the conductor, points of phrasing and interpretation, the details of which virtually no member of the audience will be even remotely aware. And the extent to which they are allowed to matter is one of the responsibilities which must eventually devolve on the conductor, that is to say, my own *métier*; and yet this is a subject hardly touched upon in this book. For that is, of course, another book and one I do

department. The players so designated are the lowest paid for they bear the least individual responsibility. Moreover, although rank-and-file players are all administratively equal in status, they may compete avidly for desk positions, outside or inside, nearer the front or back, first or second violin etc., and this often causes strife and discontent within a badly disciplined orchestra.

Experiments have been made in some organizations with a rotation system of rank-and-file players. This has some clear advantages but there are also equally serious drawbacks. Certainly there is an obvious overall increased responsibility, but the apparent gain in incentive through being rescued from the oblivion of the back desks is offset by the loss of potential reward through promotion. And the conductor's valuable gain in personal contact with players he otherwise only sees and controls from a distance is counteracted by the unsettling effect upon the players of being required to readjust to new partners and environment. Apart from training orchestras, therefore, such schemes remain the exception rather than the standard practice.

The principal and sub-principal players of each section, i.e. the two players at the first desk, are especially selected and auditioned both as personalities and with a view to their heavy artistic responsibility. The 1st violins are, however, a special case with the principal and sub-principal of the section the no. 2 and 3 players respectively. For the no. 1 1st violin is the Leader, that is, not just of the 1st violins, or even of the string department, but of the whole orchestra. The Americans, for whom the word 'Leader' may often signify the conductor, call this primary figure 'Concertmaster', a direct translation of the German *Konzertmeister*. The French use either *Chef d'attaque* (a splendidly graphic title) or simply *Premier violon*, corresponding with the Italian *Primo violino*, although *la spalla* is also in current use, *spalla* meaning shoulder, i.e. for the conductor to lean on (figuratively, perhaps) since the leader, with his overall authority, is the liaison between conductor and orchestra. He may also act as spokesman for the orchestra *vis-à-vis* the management, except in matters that properly fall into the province of an appointed union steward. But in addition the leader may share this role with the chairman of a representative committee formed by the members of the orchestra in such duties as addressing the assembled players on points of procedure or internal dispute.

Should the leader have extended solos to play during the course of a work, the second player automatically assumes the leadership of the

(Ex. 5 and 6 show arrangements of players at their desks as seen to the right of the conductor. Those on the left would, of course, appear mirror-wise.)

Fourfold *divisi* (a 4, *vierfach*, etc.) is on the face of it a simpler affair since it is an obvious derivative of *divisi a 2* by desks, each line of which is then subdivided again. Looked at from this point of view it can be seen to equate with a *divisi a 4* by players:

Ex. 7

$$\begin{matrix} 2 \\ 1 \end{matrix} \text{X} \quad \begin{matrix} 4 \\ 3 \end{matrix} \text{X} \quad \begin{matrix} 2 \\ 1 \end{matrix} \text{X} \quad \begin{matrix} 4 \\ 3 \end{matrix} \text{X} = \begin{matrix} (ii) \\ 1 \end{matrix} \text{X} \quad \begin{matrix} (ii) \\ 2 \end{matrix} \text{X} \quad \begin{matrix} (ii) \\ 1 \end{matrix} \text{X} \quad \begin{matrix} (ii) \\ 2 \end{matrix} \text{X} \text{ etc.}$$

This is especially clear when the part is printed on two staves each bearing a pair of lines, but is less obvious when the publisher has been conscientious enough to lay out the whole scheme on four staves. This apparently enlightened practice in the event occupies so much space on the printed page that it carries with it the hazard of frequent and awkward, even impossible, page turns in busy extended passages. In such cases it may be necessary to condone the 'desk a line' method even here, where the disadvantages of ensemble already inherent in threefold *divisi* are rendered still more acute. An example occurs in the last movement of the Sibelius Symphony No. 5:

Ex. 8

I Misterioso
con sord.

ppp ma marcato

VI. I

con sord.
ppp

con sord.
ppp

con sord.
ppp

con sord.
ppp

and so on for a further 73 bars. The page turns *can* only be executed with a *divisi* by desks although the closely-knit effect is sacrificed.

Ex. 14

Solo
Celli
2.3. Pult.

OR

1. Pult.
Celli
die übrigen

Over the whole repertoire every kind of *divisi* will of course arise ranging from the simplest block divisions, equal or unequal (as in the first movement of Bartók's *Divertimento*), to the elaborate desk by desk layouts of Schoenberg's *Gurrelieder* or the *ne plus ultra* of Xenakis's compositions, in some of which every single player has a different line to play.

6 SCORE LAYOUT

In a full orchestral score the strings are normally to be found grouped together at the foot of the page or system. The violins, 1st and 2nd, will mostly be bracketed, as will the cellos and basses, these last often even put on a single staff as 'Vc e Cb' in classical scores, since much of what they have to play is identical. They may then be termed simply *Bassi*, this being assumed to include the cellos. Scores of Beethoven's *Bb* Piano Concerto ('No. 2' of 1785) are printed in this way as are some (Peters and the earliest Eulenburg) of the C Major Concerto, Op. 15, but by the Third Concerto in C minor the combined line is always shown as 'Violoncello e Basso'.

Works whose scores give no more than the single word *Bassi* often

Score Layout

This is also the usual layout where the solo lines are fully concertante for the duration of the work, as in Stravinsky's *Pulcinella*; but it may be adopted for short periods of obbligati, especially if the solo instruments are playing parts similar in style and texture to each other but different from the tutti as in the Blomdahl example just quoted.

Even in such cases, however, there is no inflexible rule and Ex. 22 gives a parallel instance in which the opposite layout is presented:

Ex. 22

Dohnányi, Suite in F# Minor, Op. 19

The musical score for Dohnányi's Suite in F# Minor, Op. 19, is presented in a concertante layout. The score is divided into two main sections, each with three measures. The first section features a solo violin part (VI. Solo) and a brass part (Br. (die übr.)). The second section features a solo violin part (VI. Solo) and a brass part (Br. (die übr.)). The solo violin parts are marked 'arco' and 'p espress. cresc.' and 'f'. The brass parts are marked 'pizz.' and 'p espress. cresc.'. The string section (Vc. (die übr.) and Kb.) is marked 'pizz.' and 'mf espress. arco'.

7 PLATFORM PLANNING

On the concert platform the string section normally occupies the frontmost position of the orchestra with the groups of instruments

Ex. 30

1 VI. *p* *ma molto espr.* *sf* *ff* *ff* etc.

2 VI. *pp sempre* *cresc.*

Effects like this example from Mahler's Ninth Symphony are totally negated if the violins are seated together in a single composite group; whereas if they are placed according to the traditional formula for which Mahler was writing, the conception is fascinating and original. It is moreover a device of which he was particularly fond, for it appears in very many of his works.

One objection often raised to seating the 2nd violins on the right is that their quality is substantially weakened owing to the tilt of their instruments away from the audience. Yet the apparent loss of tone is an illusion since, like all matters of balance, it is instinctively rectified by the players; whereas on the contrary a certain variation of timbre can indeed be detected and must surely be a positive gain.

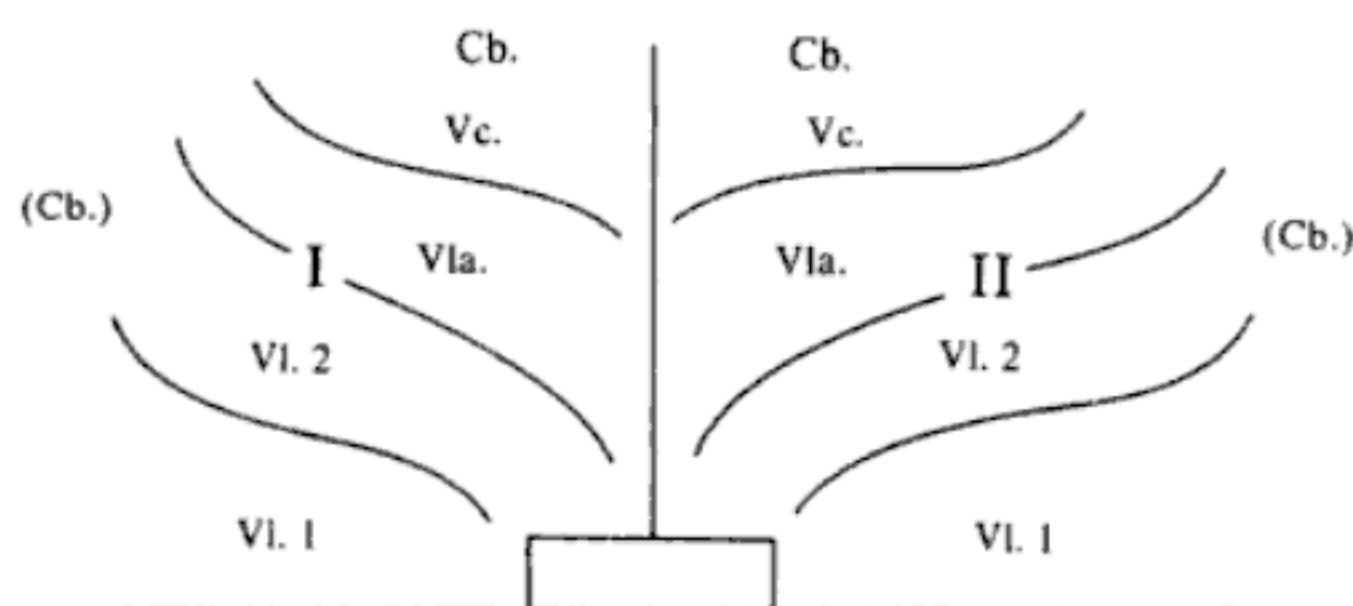
More serious is the purely practical consideration that the wide separation of the 1st and 2nd violins causes difficulties of ensemble especially in the numerous passages they play together. The undue width of platform in some halls, the bad acoustics of others, certainly create difficulties for the back desks of the respective groups when antiphonal seating is insisted upon in all circumstances as a matter of principle. With training, and where lavish rehearsal time is available, difficulties of ensemble can certainly be overcome; but in our less than ideal professional world the loss of time and the frustrations caused may prove overriding factors unless there is a positive desire to make it work on the part of both conductor and players.

There is also the side issue of the psychological impact on the 2nd violins. Many a passage that is merest drudgery when they are no more than a subsidiary section of a great mass of fiddlers can become of liveliest interest when they are in opposition to their colleagues as well as in full view of the audience; it is surprising how much better they can sound when seated separately.

However, the seating plan of Ex. 25 also has strong points in its favour apart from the attractive ease it offers in obtaining good ensemble. The histrionic aspect as the conductor turns across for

lates a double string orchestra as integral to his overall design, the layout normally adopted is one of mirror-wise symmetry, thus, in the most practical way, emphasizing the identity of each group:

Ex. 37



The placing of the cellos and basses along the back clearly presupposes the absence of woodwind and brass, and in the majority of cases this is indeed so. Bantock's monster setting of the *Omar Khayyám Ruba'iyat* provides a very rare instance of a full orchestral score with the strings divided throughout into two orchestras.

Normally, therefore, the rostra vacated by the wind can be occupied by the cellos, and this is very necessary as their tone is otherwise easily lost in being pushed so far to the back of the platform. The positions of the basses shown in brackets in Ex. 37 indicate alternatives sometimes found unavoidable where space is limited. But the disadvantage of the two groups of basses being so very far apart is made acute, when, as often, composers write for the basses of both orchestras in unison (or parallel) (See Ex. 38, overleaf).

The standard formation of Ex. 37 has, naturally, to be adapted with some degree of flexibility if the double string orchestra is part of a larger ensemble, as in Frank Martin's *Petite Symphonie Concertante*, which uses the two string orchestras as the concerto grosso to a concertante of harp, harpsichord and piano. Bartók's *Music for Strings, Percussion and Celesta* also presents problems, the solution to which the composer has tried to indicate in a kind of map at the beginning of the score.

Examples 36 and 38 both show the conventional notation of the double orchestra in two complete units, one above the other; but as the Reger indicates, this need not necessarily mean that the players will actually be seated in double formation. Such a divergency between platform and score layouts can be very confusing to the conductor.

The numbers quoted are: 20, 20, 16, 16 plus an unspecified number of basses, the whole—he says—to be further reinforced. Even London's Royal Festival Hall platform had to be measured carefully to see if it could accommodate such a vast gathering of players, without any 'further reinforcement'.

Although it is by no means regular practice to give exact figures of string strength, there are a surprising number of scores where they are in fact noted, especially when the composer is anxious that the force should not be too large for good balance in accompaniment. Thus most of Strauss's operas and orchestral Lieder are carefully adjusted and detailed with this in mind. Again Stravinsky stipulated no more than 8, 8, 6, 4, 4 *players* (not desks) for his Violin Concerto, whilst a similarly small group is insisted upon by Poulenc as the background to a solo harpsichord in his *Concert Champêtre*.

Where the composer leaves no instructions the conductor's responsibility and artistry begin. For example, Honegger gives no indication in his *Pastorale d'Été*, but only a hopelessly insensitive conductor would play this delicate fragment with a body of strings worthy of Strauss's *Ein Heldenleben*. Programmes can easily come to mind that could benefit from variations of string strength for every item.

And fashion can also play a part: classical works—Haydn, Mozart, Schubert, etc.—which would once have been played by the full orchestra under every international conductor from Bülow to Toscanini will generally be played today with greatly reduced strings in the pursuit of stylistic purity. Yet Mozart once wrote to his father in delighted excitement on hearing one of his symphonies played by forty violins with the rest of the orchestra augmented in proportion. Performances of the Beethoven symphonies have recently been given, on grounds of authenticity, with an orchestra of reduced strings such as Beethoven himself would have found at his disposal. But it is far from sure that what he actually had was, at the same time, what he really would have liked, in particular for the odd-numbered, more considerable symphonies. In any case opinions will always differ over the right artistic demands of every work whilst also bearing in mind the acoustics of each individual hall.

One has also to remember that the fewer the players the higher the standards of execution must be. Far less than a full symphony orchestra can a chamber orchestra afford to have passengers in the rank-and-file strings, since any imperfection is the more immediately perceived. Moreover, personal responsibility is likely to be greater

Solo Work on Violins

Sometimes passages may be written with more than one independent obbligato violin part. In cases of a second solo this may fall either to no. 2 1st violin, as in Mahler's Ninth Symphony:

Ex. 44

or to the leader of the 2nd violins. Handel's *Concerti Grossi*, Op. 6, present a curious situation, since the solo 2nd violin plays sometimes in unison with the tutti 1sts, and sometimes with the tutti 2nds, in addition to his duo-concertante work with the solo 1st player.

In the event such obbligati are normally played by the leader of the 2nd violins, who also automatically takes on the 2nd violin solo in such works as Elgar's *Introduction and Allegro* or Stravinsky's *Pulcinella*. On the other hand the no. 2 1st violin does also come into his own whenever the composer simply asks for a pair of solo players, as in Strauss's *Ariadne auf Naxos*, or the solo sextet that opens the same composer's opera *Capriccio*.

Sometimes, however, the composer fails to make it clear whom he was writing for, and the conductor and players become dependent upon a decision made by the publishers when preparing the orchestral material. To refer once again to the Prelude to *Lohengrin*, for instance, Wagner merely specified '4 einzelne Violinen' in the opening bars, which could most conveniently all come from the firsts. But in the parts the lines are actually given to the first desks each of 1sts and 2nds and so perforce it is always performed.

Confusingly enough, the word 'solo' is not infrequently added in the parts and/or score to indicate that the *line* is of solo importance, not that it is to be rendered by a single player. This (which naturally occurs also in solo passages for the lower strings) may need a decision

own material for this purpose as do many of the great orchestras.

Unfortunately, owing to the greatly increased cost of printing, publishers are becoming more and more reluctant to produce orchestral material for sale and prefer to keep a limited number of sets for hire only, so it is becoming ever less possible to build such a library of orchestral materials except in the case of the more popular classical and non-copyright works.

Composers are apt to be discouraged from putting bowing marks into their scores after experiencing the often ruthless treatment of players who all too readily regard the results as inconvenient or ill-informed. Yet there remains much to be said for composers' marks as an indication of style and manner, even if they have to be adapted or, at worst, discarded.

The special down-bow sign four bars after Fig. 7 in the 'Menuet' of Ravel's *Tombeau de Couperin* Suite:

Ex. 49



is not just a casual suggestion but an integral part of the composition. For it indicates a gap in sound before the accented *f* third beat, since the phrasing is so planned that the previous two-note phrase already comes on a down-bow, so that the players' bows have to be lifted for a re-attack if the printed sign is to be observed.

Elgar, himself a violinist, very often shows his intentions by means of bowing marks that should thus not be lightly ignored; similarly Britten's marks need to be respected and so with many others. But some composers relied on the views of violinist colleagues or the leaders of orchestras they had occasion to conduct. Stravinsky's bowings, for example, reflect the idiosyncratic style of Samuel Dushkin, which is often greatly at odds with present-day techniques. Mahler worked closely in conjunction with Arnold Rosé, for so many years the revered leader of the Vienna Philharmonic Orchestra. Yet Mahler's bowings are of the utmost importance as an integral expression of his thought even when they are so eccentric as to be virtually impractical without at least some small modifications:

Since then the effect has been fairly frequently adopted, especially by the neo-Viennese school, where it is to be found even in lyrical passages:

Ex. 65

Berg, *3 Stücke aus der Lyrischen Suite*



But *col legno* if not qualified as shown in the above example assumes a vertical use of the back of the bow, the wood being struck against the strings with percussive effect. This technique, common as it is and widely encountered in the repertoire, is much dreaded by players as it does no good at all to the varnish on their bows which, like the instruments themselves, are often valuable. It is true that if executed honestly with only the wood of the bow very little actual note is heard; and when composers write important note formations *col legno*, for example:

Ex. 66

Berlioz, *Symphonie Fantastique*



the players will generally cheat to a greater or lesser extent by turning the bows sideways so that a little of the hair also comes into play.

The above example, the dance of the skeletons from the Witches' Sabbath, is often thought to be one of the earliest instances of *col legno*, but it is on the contrary to be found already in the Turkish music of Mozart's A major Violin Concerto, K. 219. Here it appears in the cellos and basses under the unusual instruction 'coll'arco al roverscio', an expression which so foxed the editors of the Breitkopf *Gesamtausgabe* (including such eminent names as Brahms, Joachim,

(It is sometimes thought that *flautato* and *sul tasto* are identical and indeed Gardner Read's *Thesaurus of Orchestral Devices*¹ wrongly cites as an example of *sul tasto* Tippett's use of *flautato* in his First Symphony.)

Turning to short bowing styles, the first that arises is *marcato*. Instead of the notes merging easily into one another the sound of each is stopped by the bow before the next is initiated. The edge of the new note is then sharply attacked, irrespective of whether it is taken with a change of bow direction or not. *Marcato* may be indicated in scores by means of symbols (whether lines, accents or arrow-heads denoting increasing degrees of intensity) or alternatively by the word itself. The French *marqué* can also be found as well as the German *betont*.

In accordance with the above definition a true *marcato* should always be interpreted on the string, although the situation is often confused through the appearance, in scores, of dots—properly the sign for *staccato*—over the notes. The same is true of the extreme form of *marcato*, i.e. *martellato* (= hammered; the French use the same word, *martelé*, but neither English nor German have a standard word of their own).

Conversely a true *staccato* should be taken off the string though players will by no means always regard the use of dots over the notes as an automatic instruction to this effect: for *marcato* or *martellato* at the upper half of the bow is often a safer method for difficult ensemble passage-work.

As with *marcato*, there are different degrees of *staccato*, ranging from what players understand as 'half-off' (normally used in stronger rapid passages where a *détaché* style might become too heavy in quality) to the *spiccato*. Outside English-speaking countries *spiccato* is the general term used for all off-the-string playing regardless of degree, but we tend to use it for the harder, more brittle form of *staccato* referred to abroad as *spiccato assai*.

Spiccato, or indeed any off-the-string *staccato*, is most usually played near the middle of the bow or towards the heel where it becomes increasingly easy to control. As the heel is approached, however, it also becomes gruffer, more aggressive. For light playing therefore, composers sometimes ask for a *staccato* to be taken at the point in circumstances where the character of the music nevertheless requires that it be played off the string. Difficult as this is for control and ensemble, it can and should be done in Roussel's *Le Festin de l'Araignée*:

¹ Putnam, London, 1953, p. 399.

Ex. 79



as in the slow movement of Dvořák's D minor Symphony, Op. 70, or Siegfried's Funeral Music from Wagner's *Götterdämmerung*. Very occasionally composers do add 'trem.' but there seems to be no such word indication in use at all for 'non trem.' or 'measured' in the countless borderline cases where either of two essentially different effects is equally possible. For in the absence of any obvious choice players tend automatically to take it all too readily for granted that they should play tremolo.

A hazard of melodic lines to which tremolo is added, whether fast or slow, measured or unmeasured, is that the notation does not allow for phrasing, since the slur serves equally for phrasing and bowing whereas in a tremolo a bowed slur would be a contradiction. Thus in a passage such as the following from Brahms's *Academic Festival Overture*:

Ex. 80



it is only from the woodwind slurs that the correct phrasing and accentuation can be discerned. Poulenc, in his *Sinfonietta*, actually writes:

Ex. 81



but it does cause perplexity amongst players who perhaps reasonably though unimaginatively protest that the slur as marked is unplayable. Yet Poulenc's method has much to commend it. For ties are equally obscured by double-stroke or tremolo notation, so that there is no way

bottom to top, but this is not always necessarily correct. In the popular 'Marcia' from Dag Wiren's Serenade, the cellos' open string three-note chords could well be thought to be more striking when spread downwards towards the resonant bottom C. Alternatively such cello chords in particular may be plucked in neither the one nor the other direction but vertically *upwards*, away from the instrument using a finger for each string, as suggested in connection with Ex. 85 and here in the coda to the Scherzo from Dag Wiren's work:

Ex. 88



Here again, however, the score gives no guidance over the manner of execution which thus becomes a nice stylistic point.

Sibelius, in the Pastorale from his incidental music to *Pelleas and Melisande*, writes, for the violas, a repeated succession of *Ab*'s directed to be played 'Mit dem Daumen, Instrument frei', an unusual instruction for a similar manner of execution.

In Roussel's *Suite en Fa* the unusual instruction 'glissez' is used to denote the throwing of the plucking fingers right across the instrument; while Debussy in *La Mer* wrote strong dramatic pizzicato notes for the violins with the injunction 'à vide' (i.e., open string).

If executed over-enthusiastically such vehemence can cause the string to rebound off the fingerboard giving a snapping crack. Mahler was the first actually to prescribe this exaggerated over-plucking in the Scherzo of his Seventh Symphony, while Bartók exploited it to such an extent that he found it convenient to invent a special symbol ϕ :

Ex. 89

Bartók, Violin Concerto (1938)

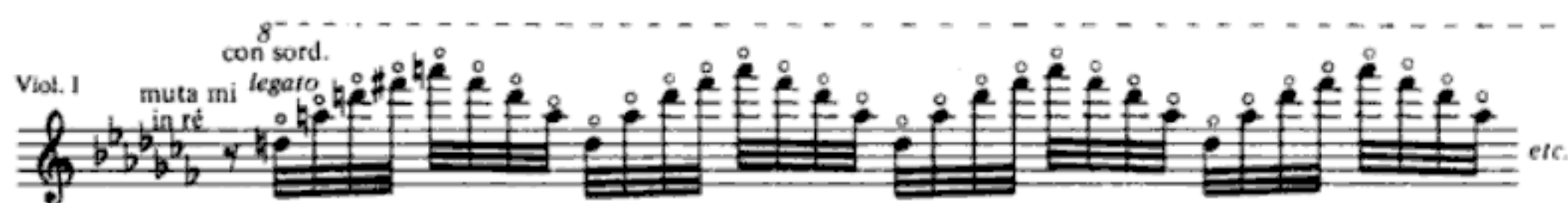


Composers sometimes instruct the strings to adopt unconventional tunings. (This is always an unpopular requirement and is strenuously resisted by players as—with some justice—they say it throws out all the fingerings and that changes in string tension can upset the instrument.) Such re-tunings, known as *scordatura*, have a long and venerable history and may be applied to all four strings, though in this case it usually concerns only a single player, i.e. a soloist or the leader. A well-known solo instance is in Mozart's *Sinfonia Concertante*, K. 364, where the viola is tuned up a semitone and written as a transposing instrument in D. A notorious example for the leader of the orchestra is Mahler's Fourth Symphony (Ex. 1 on p. 30 above): in this case the player has to bring on to the platform a second retuned instrument which he keeps by his side for quick change-over during the Scherzo.

Instances of all sorts of retunings can be found in the repertoire for special purposes or effects such as the fiddling skeleton in Saint-Saëns' *Danse Macabre*, whose E string tuned down to E \flat forms so amusingly grisly a feature of the score.

In fact by far the commonest *scordatura* is for a single string to be retuned and this is the primary requirement in the case of the tutti. Such a change may be required in order to obtain an otherwise non-existent natural harmonic as in Stravinsky's *Firebird*:¹

Ex. 94



But it is most often a matter of lowering the bottom string so as to extend the range. Hindemith, for instance, instructs the 2nd violins to tune their G strings to F \sharp in the slow movement of his *Symphonic Dances*. Here he uses a very unconventional notation; as the only note to be played after retuning is the open string he writes it as a G and adds a footnote to explain that it is to sound F \sharp . But the more usual and simpler expedient is to keep to conventional notation and simply to use the extended range as Bax does in his First Symphony where his 2nd violins actually tune down to F \natural and his violas to C \flat .

¹ But see footnote on p. 132.

The Strings

on the violins' G strings in his *Prince of the Pagodas*) but on the uppermost the players can be regularly required to continue up into positively stratospheric regions. Opinions differ amongst the various pedagogues as to what is in fact the highest note obtainable on the violin, but the following passage from Strauss's *Also sprach Zarathustra* is one of the highest actually written:

Ex. 99

poco accelerando *) etwas lebhafter (alla breve)

Violinen I.
1. 2.
3. 4.
5. 6.
7. 8. Pult.

Violinen II.
1. 2.
3. 4. 5.
6. 7. 8. Pult.


Bratschen.
1. 2.
3. 4.
5. 6. Pult.

Violen.
1. 2.
3. 4.
5. 6. Pult.

(alle Violinen mit springenden Bogent)

*) alle Violinen mit springenden Bogent

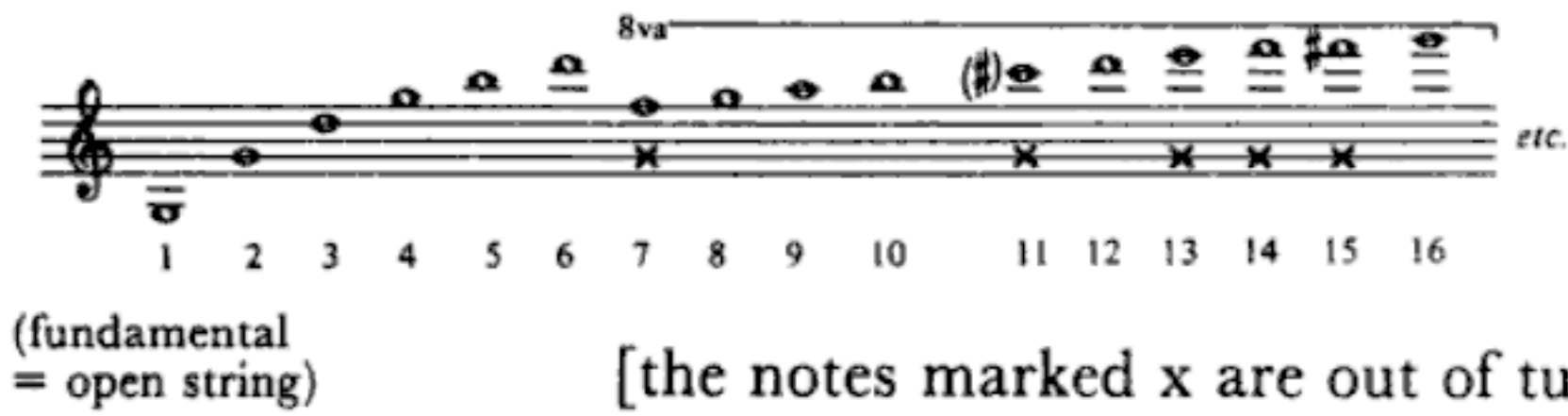
Theoretically the violas might be assumed to command an identical register a fifth lower, but in practice composers mostly avoid using their extreme upper notes even when the violins are playing at the very top; this is because the extra size of the viola puts these notes out of reach for most players and in any case this is not their purpose in

life. Strauss in *Heldenleben* does admittedly write up to  which

Ab would still only correspond with a top *Eb* on the violins, being just under two octaves above the open string. And even so it comes as part of a long tutti played entirely in unison with all the violins and much of the wind and is therefore in no way hazardous.

Where the cellos are concerned composers are once again more

Ex. 105



Theoretically these are obtained by touching the string half-way, two-thirds-way, three-quarters-way, etc. up its length, but in practice by nos. 5 or 6 of the series the finger has approached so near to the bridge that these harmonics become rapidly more and more unfeasible. Nevertheless it so happens that by touching the string lightly in the same way at various other points between nos. 1 and 2 some of these harmonics also result in an irregular order, viz:

- (a) a minor 3rd above the open string sounds 2 octaves and a 5th above (= no. 6)
- (b) a major 3rd above the open string sounds 2 octaves and a 3rd above (= no. 5)
- (c) a 4th above the open string sounds 2 octaves above (= no. 4)
- (d) a 5th above the open string sounds 1 octave and a 5th above (= no. 3)
- (e) a minor 6th above the open string DOES NOT EXIST (N.B.)!
- (f) a major sixth above the open string sounds 2 octaves and a 3rd above (= no. 5)
- (g) an octave above the open string sounds 1 octave above (= no. 2)

Set out diagrammatically this will appear (always, by way of example, only in relation to the G string):

Ex. 106



Here x represents the open string—i.e. no. 1 of the harmonic series given in Ex. 105—while g is in fact no. 2 of that same series. For this reason in both 'I' and 'II' of Ex. 106 they are notated with the usual round notes with an 'o' placed over the top, for it is general practice to

The Strings

Ex. 112

31 (♩ = 130) 85

Fl. picc.

Cl. (A)

Fg.

Camp.

Ptti. colla mano

Arp.

Primo

Pfte. 4 ms.

Sec.

2 Soli

2 Soli V.I.

2 Soli

4 Soli

2 Solo Vle.

4 Solo

Vlc.

2 Soli Cb.

2 Soli

ppp

pp

mf

p

pp

pizz.

arco

div.

con sord.

sul I

sul II

sul III

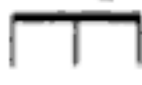

sul IV

sempre simile

Because of all these troubles, some composers write all harmonics other than the simplest 'natural' ones by adding the resultant sound at the top of the notes showing the method of execution, viz:

But composers do also use them for actual simplicity. Both Vaughan Williams's Concerto Grosso and Britten's *Noye's Fludde*, for example, include parts written entirely on open strings for the benefit of amateurs or young players who need have no left hand technique.

21 THE USE AND APPLICATION OF MUTES

Muting is not merely a device for softening the tone but a colour in its own right. The commonest indication for this and its contradiction is the Italian *con/senza sordini* (abbr. *sord.*), for which the French is *avec/sans sourdines* and the German, *mit/ohne Dämpfer*. The Germans also use *gedämpft* (muted) which is clear enough, but the additional terms *Dämpfer auf* (on) and *Dämpfer ab* (off) are liable to be confused. *Dämpfer weg* is also sometimes found and corresponds with another and graphic Italian indication, *via sordini*—i.e. 'away with mutes'. Tchaikovsky, in his *Symphonie Pathétique*, also gives the rare 'alzate sordini' (literally lift, or raise, the mutes). Advance warning is sometimes given of an approaching muted passage. This is generally obvious, e.g. *préparez les sourdines*, but the German *Dämpfer vorbereiten* should perhaps be documented. Players often put into their copies the symbols  and  for mutes on and off, but these are never found in print.

Composers sometimes neglect to indicate where the mutes should come off and *ad hoc* decisions have constantly to be made (see, for example, the last movement of Rachmaninov's Third Piano Concerto, or the 'Scène d'amour' from Berlioz's *Romeo and Juliet*). One result of this is that there are places in the repertoire where it is believed that the unmuting directions have been omitted whereas the composer may well have intended the veiled tone to persist even in loud passages. One of the best known instances of this dilemma is the central climactic passage of the Largo of Dvořák's New World Symphony, which is often played unmuted although there is no such indication, whereas on the contrary the sound of muted strings makes a remarkable and beautiful effect.

The contrast of sheer colour between muted and unmuted strings whether soft or loud has been variously exploited. Reger was particularly fond of dividing his string group for this purpose as in his *Variations and Fugue on a Theme of Mozart*. The opening of 'Der geigende

four-note chord to be played virtually unspread, although hardly in anything less than a *forte*. Even then a passage like the following from Mozart's Fourth Horn Concerto, K. 495, might very well sound rough and disagreeable:

Ex. 122



With typical thoroughness Forsyth gives an extended list of possible three and four-note chords, but this is of less practical value than it might seem. Where composers write awkward or frankly impossible chords it still gives a better impression of the effect they really want, and players are adept at dividing where necessary. This is generally done by various kinds of overlapping so that the compromise is barely perceptible. The overlap will usually be of two and two in three-note chords, but not in four-note ones which are taken three and three, viz:



Where chords are directed to be spread this is mostly taken to mean from bottom to top and no specific indication is marked. But as has been mentioned in connection with pizzicato, the reverse is of course equally possible and when required is notated either by a vertical arrow to the left of the chord or by spelling out the notes as appoggiaturas:



One of the favourite uses of chords and double-stopping is the combining of stopped and open strings. A device much loved by Mozart is double-stopping on a unison—the open D, for example, sounded simultaneously with the same note stopped on the G string:

Ex. 123

Mozart, Violin Concerto No. 4, K. 218



(Similarly the A is taken on the D and A strings.)

Glissandi present problems of notation, especially when they begin or end in the middle of a bar. In such cases there is no invariable custom and composers differ in their solutions, putting stemless notes in brackets, or bracketed rests, or even noteless stems such as Xenakis in his *Pithoprakta*:

Ex. 133



Although in the score it seems clear enough what is meant, the part can be quite perplexing to the player who loudly protests that there are not enough beats or notes in the bar, etc.

It is rare to find the speed of the slide in a glissando mentioned or indicated in any way. In a quick passage such as the example from Ravel's *La Valse* quoted as Ex. 132 above there is no difficulty and this kind of quick slither in both directions was a favourite colourful device of Ravel's, and was taken over by many subsequent composers. But in slower tempi the speed of the slide may become very much a matter of style or judgement, as also the point in the duration of a longer note when the glissando should begin. Unless the composer specifies to the contrary, as occasionally happens, it is usually assumed that the slide will start only towards the end—i.e. at the up-beat to the end-note—to avoid an ugly, grotesque or at worst comical effect.

In many contemporary works, however, it is precisely the slow glissando that is wanted in the overriding desire to extend the palette of orchestral devices. Many composers are, in this respect, strangely blind to the truth that the effect is so ridiculous and inevitably arouses audience reaction of a most irreverent kind. Any suggestion of this is apt to be rejected indignantly as highly offensive, yet the danger remains and should not be ignored.

Undoubtedly one of the most magical glissando effects is that of harmonics exploited by Stravinsky in *The Firebird*¹ and especially by Britten in *Les Illuminations*:

¹ Unfortunately the dazzling effect of this is to some extent spoilt in the 1919 version through one of the myriad misprints of the edition; the instruction at the 2nd bar of Fig. 3, '8va' for the 1st violins who have tuned their E strings down to D, produces an impossibility and should sound *two* octaves higher (cf. the original ballet score). As a result many players ignore the instruction and play on the D string like the 2nd violins.

contrary to all the theories they most vehemently hold and assert.

Finally the string body is outstandingly flexible and intuitive. Miracles of instinctive and instantaneous response can be achieved by a highly trained string orchestra in which, it should be remembered, most of the members lack that element of individual contribution enjoyed by every wind player. And oddly enough, when groups of wind players take over the string rank-and-file roles, as in the military band, they never achieve any comparable finesse of nuance, whether in interplay to each other in tone and dynamics, to a conductor's freedom of expression or rubato, to variations of style or technique, or even in the matter of the endless give-and-take in accompaniment within the orchestra itself or in concerto and operatic work. And where traditional rhythmic freedom is concerned, such as in the waltzes of Johann Strauss, or the opening of the Scherzo of Dvořák's D Minor Symphony, Op. 70:

Ex. 137

an alert string section can accomplish as one man, and even without rehearsal, subtleties of phrasing which could never be written down or explained and which would require hours of preparation and rehearsal with the soloist-orientated wind groups.

place at all in the repertoire and orchestrally speaking the controversy could therefore be thought to be academic. The fact is that, practically, the 'alto flute' and the 'bass flute' are one and the same; e.g. the bass flute of Britten's *Sinfonia da Requiem* is identical to the alto flute of his later works.

This instrument is pitched a fourth lower than the flute and is notated in the treble clef as a transposing instrument in G. It is the French who consequently avoid any argument by simply calling it *flûte en sol*, and so it appears in all French scores. Stravinsky in the original edition of *Le Sacre du Printemps* gave it the equivalent Italian of *flauto in sol*, but the Italians and Germans very rarely use the instrument at all. The occasional modern Italian score can be found with *flautone*, never *flauto grande*, since this, like the German *grosse Flöte* is already in regular use for the ordinary flute as opposed to the piccolo when the two instruments alternate.

An exception to the alto flute being pitched in G in orchestral literature cannot go unmentioned. This is Glazunov's Eighth Symphony where a 'flauto contralto in F' is listed. This instrument has long since disappeared and players today know nothing about it. Rimsky-Korsakov mentioned it in his *Principles of Instrumentation*, though only *en passant* as an alternative to that in G, and since Glazunov never used its bottom notes (on the contrary writing surprisingly high passages for much of the time) it is hard to know why he should have specified the lower instrument. (It is interesting however, to find that Rimsky-Korsakov already refers to this F instrument as an alto flute.)

OBOES

Oboe

Since, strange to say, no smaller member of the oboe family has been established orchestrally, the oboe itself remains the highest representative. Below come, in turn, the oboe d'amore, the cor anglais and the bass oboe.

The French term *hautbois*—literally 'high wood'—was once in use in England and spelt 'hautboy'; but both English and German have adopted the Italian *Oboe*, although the Germans sometimes restore

day composers, as the Ritual Dances from Tippett's *The Midsummer Marriage* illustrate (Ex. 169). On the other hand, Delius in his *Dance Rhapsody No. 1*, written as long ago as 1908, simply did not bother with the A clarinet even though it meant producing the most awkward passages in fantastic keys for the B \flat instrument such as the following:

Ex. 141



Typically, Strauss wrote in *Salome* for pairs of both A and B \flat clarinets giving a fascinating study of his view of their qualities both in apposition and conjunction.

Clarinet in B \natural

Of the long list of accessory clarinets the one in B \natural is quickly disposed of, for it no longer exists. Yet it appears in old editions of, for example, Mozart's operas *Idomeneo* and *Così fan tutte*, in the latter especially in Fiordiligi's great aria 'Per pietà'. In all standard editions of the score, however, it is replaced by the A clarinet.

Clarinet in C

Thought to be virtually extinct not so long ago, the C clarinet is actually back in circulation, though it is still comparatively rare. In classical and early romantic times it was as standard as the B \flat and A, so that any work centering around the tonality of C would automatically be written for C clarinets, such as Beethoven's First and Fifth Symphonies, Schubert's Sixth and Great C Major, Bizet's Symphony, Liszt's *Faust Symphony*, etc. to name only a few outstanding examples.

But Strauss and Mahler used the C clarinet differently; that is to say, in its own right and quite opposed to the others, for its individual, rougher quality. It is, however, precisely because of this—as well as the difficulty of obtaining good and reliable instruments—that clarinettists normally try to avoid it, and tend to transpose C parts on the B \flat instrument.

From what has already been said it must be becoming increasingly

treble clef appears. For example the opening of the last movement of Sibelius's Sixth Symphony has sometimes been misinterpreted:

Ex. 144

Allegro molto

The musical score is for the opening of the last movement of Sibelius's Sixth Symphony, marked 'Allegro molto'. It features six staves for woodwinds: 2 Flauti, 2 Oboi, 2 Clarinetti in B, Clarinetto Basso, 2 Fagotti, and 4 Corni in F. The Flauti and Oboi parts are in treble clef, while the Clarinetto Basso, Fagotti, and Corni parts are in bass clef. The Clarinetti in B are also in treble clef. The score shows the first few measures of the movement, with various dynamics like *f* and *p* indicated.

In this context, high as it appears, the bass clarinet should indeed sound a tone and not a ninth below the written note.

Webern's 6 *Orchesterstücke*, Op. 6, present a particularly acute instance of this dilemma. In the revised 1928 version only notation (1) is used. But in the 1909 *Urfassung* Webern wrote in both treble and bass clefs and it is quite uncertain which octave the treble clef notes should sound, the question being further confused by an equivocal footnote and by the fact that the part is written in a different notation from the score, making *ad hoc* decisions necessary on each occasion.

There is thus no escaping the frequent ambiguities, the only guides towards correct interpretation of doubtful contexts being knowledge of composers' practice and—one hopes—internal evidence from the score itself.

Pedal Clarinet

Last in the gamut of orchestral clarinets comes the pedal, or contrabass clarinet, an octave lower again than the bass clarinet. This is also found written in B \flat or A (the latter, for example, in Schoenberg's 5 *Orchesterstücke*, Op. 16) though it seems doubtful whether an instrument in A has ever actually existed. The notation for the pedal clarinet has always been in the bass clef but sounding an octave lower—i.e. a ninth (or tenth) lower than written.

hotbed also of flute B \natural 's) or numerous Strauss works (*Rosenkavalier*, *Bourgeois Gentleman* etc.). In one way the problem would seem greater than that of the flute since the analogous extension would be to the flute B \flat —i.e. a whole tone below the standard lowest note—and piccolos with the low C are hardly ever found today. On the other hand the subterfuge of arranging for the missing note(s) to be covered is relatively simple since any unoccupied flute can do this imperceptibly, whereas to cue the flute's low B's onto a clarinet (as was common practice until comparatively recently) gives an entirely different colour and is patently a very second-best expedient.

A word should perhaps be added here about methods in common use to overcome the problem of extensions where alternative instruments are not available. The head-joint can be pulled out to some extent from the main body of the flute in order to produce isolated low notes, though the problems of intonation and the danger of the flute falling apart make this practice distinctly unpopular with players. Their other method is sometimes to improvise little cardboard cylinders which, fixed to the end of the foot-joint, will extend the length of the instrument sufficiently to provide a tolerable B \natural . This expedient has, however, the disadvantage that the B is produced instead of—not as well as—the C and thus a passage like the following still remains impossible:

Ex. 148

Busoni, Violin Concerto, Op 35



as for that matter does the quotation from the Dvořák Cello Concerto given as Ex. 146 on p. 155.

Returning to the piccolo, this cannot really reach its topmost D like the other flutes. Examples up to C can, however, be easily found in orchestral literature, as in Mahler's Third Symphony:



Ex. 149



bottom notes for granted. The fact is that an enlarged, differently shaped bass clarinet had already in earlier years become quite common in Russia and had spread gradually westwards reaching Germany, making its more regular appearance in England only since the Second World War, though it still cannot be assumed as a matter of course. Thus works like the Khachaturian Piano Concerto or the Sixth Symphony and First Violin Concerto of Shostakovich continue to present a problem if the bass clarinetist does not happen to possess the extended instrument.

It should be added that Schoenberg already wrote down to the low concert C \flat for bass clarinet in his Serenade, Op. 24, of 1923, but this is less indicative of his awareness of the existence of larger instruments than part of his growing hobby-horse of writing all transposing instruments at concert pitch with increasing disregard for their specific limitations of range. This viewpoint led to his later practice of abandoning in many of his works the very layout of a full score in favour of an all-purpose *Particell*—i.e. short score. In such a score (as for example the Violin Concerto or *Moses und Aron*) the woodwind is written on three staves in all, of high, medium and low pitch, so that the bass clarinet part would be included in a line together with bassoons or any other wind instrument of comparable range, with only rough indications of what each instrument plays. It is hard to understand such a haphazard approach and tortured logic in the man who had concocted miracles of orchestral colour, calculated to such a fine degree, as abound in *Erwartung* or the 5 *Orchesterstücke*, Op. 16.

At the upper end of the compass the clarinet is to some extent flexible in potential range, although the sound becomes so penetrating and raucous, and the intonation so hard to control, that composers

are disinclined to write above  or , though top A's can be

found in the repertoire and Ginastera in his *Variaciones Concertantes* continues a solo scale right up to the top B for the B \flat clarinet; Elgar in *Falstaff* goes even further, taking the instrument to the very top C, though admittedly in a tutti passage. In actual fact the famous death squeal in Strauss's *Till Eulenspiegel* in which the D clarinet rushes up to seemingly alarming heights, only goes up to its top A \flat , which becomes no more than a top G when played, as so often, on the E \flat clarinet.

The basset horn and bass clarinet are rarely taken very high, partly

Ex. 161

Ex. 161 is a musical score for a woodwind ensemble. It includes staves for Fl. pic., Fl. I. II., Ob. I. II., Cl. I. II. C, and Fag. I. II. The music is written in a key with one sharp (F#) and a 2/4 time signature. The Fl. pic. part features a melodic line with many accents. The other instruments provide harmonic support with chords and moving lines. Dynamics include *f* and *marc.*

in both of which the piccolo is intended to add brilliance to a fully scored woodwind ensemble, but as written is barely audible; or especially the final flourish of Borodin's Second Symphony:

Ex. 162

Ex. 162 is a musical score for a woodwind ensemble, starting at measure 280. It includes staves for Fl. picc., Fl. I. II., Ob. I. II., Clar. I. II. (A.), Fag. I. II., and Cor. (F.) I. II. III. IV. The music is in a key with two sharps (D# and F#) and a 2/4 time signature. The Fl. picc. part has a melodic line with a trill at measure 280. The other instruments play a rhythmic pattern of eighth notes. Dynamics include *f* and *marc.*

On the other hand, it has a sparkling glitter at the top that has been widely exploited in the depiction of flames (Wagner's 'Fire Music' from *Die Walküre* or Strauss's *Feuersnot*) as well as lightning flashes—which are always the essential responsibility of the piccolo (Berlioz, 'Royal Hunt and Storm'; Verdi, *Rigoletto* Act 3, etc.). By comparison, flutes are far less pointed at their highest register and the very high writing in, for example, Prokofiev's *Classical Symphony* is relatively fussy rather than truly brilliant.

The Woodwind

Ex. 166

Ex. 166 is a musical score for a woodwind and string ensemble. The instruments listed are Fag. (Bassoon), Viol. (Violins), Viola, Vc. I & II (Violoncellos), and Ctrb. (Contrabass). The score is written in 2/4 time. The key signature has one sharp (F#). The dynamics are marked *pp* (pianissimo) and *ppp* (pianissimissimo). The tempo is indicated as *pp* and the tempo marking is 180.

Mondschein; Nymphenreigen. (Luna; rej rusálek.)
 L'istesso tempo. $\text{♩} = \text{♩}$. *p* *lusingando*
 The score continues with the same instruments as Ex. 166. The dynamics are marked *pp* (pianissimo), *ppp* (pianissimissimo), and *con sordini* (with mutes). The tempo is indicated as *p* *lusingando* and the tempo marking is *tranquillo*.

Family Characteristics: Bassoons

Ex. 173

Chabrier, *España*

a2 (très en dehors)

f

ben giocoso, sempre con impeto

f

ff

etc.

—while in solo bassoon passages some element of comedy or the grotesque is rarely far away: the broomsticks coming to life in Dukas' *L'Apprenti Sorcier*, the absurdly pompous Grandfather strutting around in Prokofiev's *Peter and the Wolf*, the Kraken in Britten's *Nocturne* or the porpoises in Milhaud's *Protée* are all memorable exploitations of this aspect of the bassoon.

Yet sustained lines on the bassoon can exhibit an entirely different character—subtle and plaintive. The lower register is marvellously lugubrious (one need only recall the opening of Tchaikovsky's *Symphonie Pathétique*) whereas the upper octaves have a touchingly poetic colour, used with great effect by Respighi to depict the Adoration of the Magi in his *Trittico Botticelliana*:

Ex. 174

Andante lento ♩ = 56

Fagotto

P dolce

Ob.

P dolce

Fg.

Cr.
Mi

p

Indeed, Stravinsky's choice of the high bassoon for the opening of *Le Sacre du Printemps* (see Ex. 158 above), causing many a raised eyebrow

selves on acquiring and exhibiting in solos such as the following from the last movement of Beethoven's Fourth Symphony:

Ex. 178



Curious, perhaps improbable instrument as the bassoon may seem, its primary role as part of the continuo in classical and baroque music has led to its inviolate position in the orchestras of all periods. Indeed in seventeenth-century orchestras it was taken so much for granted that composers often failed to specify where, or even if, the bassoons should play or not. It would be assumed automatically that a pair would double the cellos and basses unless they should have something better to do in the form of an individual contribution. Hence the ballet music to Mozart's *Idomeneo* makes no mention of bassoons in the full-bodied opening Chaconne, though they appear in the Larghetto that follows; when the Chaconne resumes there are again at first no bassoons, but at bar 20 they reappear abruptly, playing to the end of that movement but never again for the rest of the ballet. Moreover, the bassoon parts are printed in this patently incomplete way in the Breitkopf & Härtel orchestral material.

By contrast, the slow movement of Mozart's Symphony No. 34 in C, K. 338, is scored for strings only, but both bassoon copies were printed in the Breitkopf edition with the cello/bass part of this movement included in its entirety. Similar anomalies can be found in many other works of Mozart and his contemporaries and the case is often far from clear even once it is assumed that the nineteenth century editions have obviously run amok. For example, the Robbins Landon edition of the complete Haydn Symphonies cites a single doubling bassoon in every one of the first half of the entire gamut of symphonies, but it is purely conjectural that bassoons, whether one or two, were ever expected to pump away non-stop alongside the basses in work after work in which they were neither specified in the list of instruments nor carried any individual line whatsoever. The spectre of pedantry soon looms in such circumstances, yet it is undoubtedly known that they did indeed contribute to some extent. There are even strange phenomena in scores as late as Beethoven which suggest the continuing tradition, such as the isolated bassoon D's in the first movement of the Pastoral Symphony which could be taken to suggest

which they will naturally come within the orbit of the fourth players, though the second and third players will need to be prepared to cooperate where composers such as Mahler and Strauss lay their scores out with complicated woodwind doublings, or where (as in the case of the multiple piccolos mentioned above) the score calls for more than one cor anglais, *E♭* or bass clarinet, basset horn, or even contra. Such cases, though admittedly the exception, are by no means unknown: Busoni used a section of one oboe combined with two cors anglais in the Sarabande from *Doktor Faust*; two *E♭* clarinets are to be found in Mahler's Second Symphony, two basset horns in Strauss's *Elektra*; Webern scored for two bass clarinets in the splendid original version of his *6 Orchesterstücke*, Op. 6; and Stravinsky provides a spectacular example of two contras in the 'Death of Kastchei' from the ballet score of *The Firebird*.

The rarest instruments of all the woodwind, such as the oboe d'amore, bass oboe (or heckelphone) and pedal clarinet, are used too infrequently to be specifically engaged on a permanent basis, though if it transpires that a prospective member actually possesses one it naturally enhances his market value enormously.

There are certainly a number of scores in the repertoire of a full symphony orchestra that demand quadruple wind, but nevertheless these must always remain only a relatively small proportion of the works covered within the monthly schedule. Larger formations still can readily be cited (Schoenberg's *Gurrelieder*, Stravinsky's *Le Sacre du Printemps* and Mahler's Eighth Symphony are obvious examples) but the mammoth extra forces required for these isolated giants are always engaged by even the largest international prestige orchestras on an *ad hoc* basis.

At the other extreme end of the numerical scale there remains to be discussed the woodwind formation consisting of only a single representative of each member of its respective family. This chamber orchestral formation is of comparatively recent origin, appearing in such works as Stravinsky's *Danses Concertantes*, Britten's *Sinfonietta*, Honegger's *Pastorale d'Été*, etc. Earlier examples of such chamber ensembles generally include a pair of one or other of the families, such as Wagner's *Siegfried Idyll* which has one each of flute, oboe and bassoon, but a pair of clarinets.

A large number of classical works (and also several twentieth century pieces written with an eye to inclusion by orchestras specializing in a classical repertoire) reduce the wind group by using just two

be considered. When the strings are disposed according to the old classical and continental practice as shown Ex. 23 on p. 50, in which the cellos and basses are placed to the conductor's left, the positions of the clarinets and bassoons are often reversed, the former sitting behind the oboes and the latter behind the flutes. The clear advantage of this arrangement is that the bassoons are brought nearer to the cellos and basses with whom their lines have often much in common.

8 TECHNICAL EFFECTS

TRILLS AND TREMOLOS

Shakes do not generally present a problem for woodwind; they can be so quick and lithe that composers often forget to specify the exact interval the player should trill on (semitone or tone), though tremolos on wider intervals are of course normally notated precisely. However there are a few shakes that are so awkward as to be virtually impossible, requiring ingenuity on the part of the player to disguise moments where the composer has crossed the borders of practicability. Alban Berg set a problem for clarinets in the second movement of his *Kammerkonzert*:

Ex. 182

The musical score for Ex. 182 consists of three staves. The top staff is for Kl. (Es) in treble clef, the middle for Kl. (A) in treble clef, and the bottom for B. Kl. in bass clef. All three staves begin with a tremolo (trem.) marked *pp* and *poco cresc.*. The Kl. (Es) and Kl. (A) staves have a slur over the first two measures, with a 'Flzg.' (flute) marking above the third measure. The B. Kl. staff has a slur over the first two measures, with a 'Flzg.' marking above the third measure. The notation is complex, with many beamed notes and accidentals.



The lines in Ex. 182 are given in concert pitch according to Schoenberg's theories of score presentation, but if transposed into real clarinet terms it will be seen that some of the tremolos are quite awkward, lying as they do across the break.

For the guidance of composers Forsyth typically lists woodwind shakes and trills which he deems to be possible, barely possible or impossible, just as he does with string chords; but, unlike strings, wind technique and instruments are constantly improving and evol-

Ex. 191

[illegible]

HARMONICS

Although theoretically all woodwind instruments can be said to obtain harmonics by 'overblowing', in practice only the flute ones are used orchestrally and even these are a specific series overblown at the 12th: that is to say, while they are written at pitch with an 'o' placed over them—just like string natural harmonics—they are actually fingered a 12th below. Hence  obtained by fingering  is the lowest of these harmonics prescribed in the orchestral repertoire. The following example from Ravel's *Daphnis et Chloé* is a particularly well-known instance of their use.

Ex. 192

[illegible]

music. In some long solos such as the *Prélude à l'après-midi d'un faune* the flautist's personal pride may be involved over his capacity to manage the whole phrase in a single breath. At others the conductor's preference or opinion may be sought about where the phrase may be best, or perhaps least harmfully, broken.

Where solos are doubled it is of course obvious that breathing can be staggered and some composers, such as Britten, actually indicate by means of the symbols V and Λ above or below the stave how this should be done.

The analogy between string bowing techniques and woodwind tonguing or breath control can be pursued to a certain extent. But although there are naturally the widest variations between soft and sharp tonguing and other such refinements of phrasing, the corresponding range of terminology is less rich than that of the strings and composers all too rarely indicate with any degree of precision the required style of playing in wind music.

The softest 'half-tonguing' can simulate a *portato* effect comparable with the *louré* string style (see pp. 86–7) and this may also be produced by the pressure of the lip alone. At the other end of the tonal scale, *sforzandi* can either be given weight, in order to give projection to an accent, or sharply tongued to create an explosive effect.

The end of a note or phrase normally floats naturally away on the breath, and it is unusual as well as bad style to clip a note with the tongue unless it is specifically required as a special effect.

Another feature of bad style phrasing is what is known colloquially as 'push-stroke', by which a player tongues the note below the required dynamic level which is subsequently reached by pressure of the breath, giving a bulge to the sound. Though generally regarded as disagreeable, this kind of execution is in fact deliberately prescribed by some composers, especially Schumann, by means of 'hairpins' (< >) placed above single notes.

10 SOLO PASSAGE WORK

Although the lion's share of the solo woodwind lines naturally falls to the principal player of each family, the sub-principals still come in for a considerable amount of individual responsibility, quite apart from the 3rd player's province of the subsidiary instruments. Dvořák, for example, gives more than one of the main themes in the first

Affiliated Instruments—Saxophones

and Ravel most oddly below the brass but above the percussion. Prokofiev places the saxophone stave between the clarinets and the bassoons, Britten between the bassoons and horns, while different editions of Bizet's *L'Arlésienne* give it in each of the above positions. Berg, however, placed his saxophone between the oboes and clarinets; while Milhaud in *La Création du Monde* conceived the highly original and unconventional idea of using the saxophones as a substitute for the violas in the string group, even placing it there in his score layout:

Ex. 197

Modéré $\text{♩} = 54$

The score is arranged in the following order from top to bottom:

- 2 Flûtes
- 1 Hautbois
- 2 Clarinettes en Si \flat
- 1 Basson
- 1 Cor en Fa
- 2 Trompettes
- 1 Trombone
- Piano (with *mf* marking)
- Tambour de basque
- Bloc de métal
- Bloc de bois
- Cymbales
- Caisse claire
- Caisse roulante
- Tambourin
- Crosse Caisse à pied avec Cymbale (with *Gr. C. seule* and *(avec Cymb. décrochée)* markings)
- 2 petites Timbales
- 3 Timbales (with *mf* marking)
- 2 Violons Soli (with *mf* marking)
- 1 Saxophone en Mi \flat (with *mf* and *chant* markings)
- 1 Violoncelle (with *mf* marking)
- 1 Contrebasse (with *mf* marking)

the tempered scale. The notorious $\frac{6}{4}$ chord gives perennial trouble, as in Strauss's *Till Eulenspiegel*:

Ex. 198.

The musical score for Ex. 198 is for a woodwind and string ensemble. The woodwinds include 2 Flutes, 2 Clarinets in B, 2 Bassoons, and 1 Horn in F. The strings include Violins I and II, Violas, Violoncello, and Contrabass. The tempo is marked 'Gemächlich.' and the dynamics are 'p' (piano). A circled section of the score shows a complex chord in the woodwinds, with a '4/4' time signature and a '4/4' note value. The tempo changes to 'allmählich lebhafter' (gradually more lively).

Here one of the notes in the flutes and clarinets—often enough the tonic F, strange to say—may have to be flattened with regard to the prevailing pitch before the chord will be tolerable and free of ‘beats’. Sometimes the use of a certain degree of vibrato in, for example, the flutes may help. For the innate purity of the flute sound in itself can make it appear to be actually below pitch when combined with other members of the wind ensemble. The same can be true of the lowest register of the oboe, though for different acoustical reasons. These are matters which experienced and well matched players will aim to correct as a matter of course. Such a wind section will often prefer to organize their differences and make any necessary adjustments amongst themselves, especially in the case of the well-known *bêtes noires* (Mendelssohn’s Overture *A Midsummer Night’s Dream*, Rimsky-Korsakov’s *Scheherazade*, the last chords of Wagner’s *Faust* Overture, Balakirev’s *Thamar* and Strauss’s *Don Quixote*, etc., etc.) but the conductor’s help may be sought or, despite what has been said on pp. 169–70, could be indispensable. It must also be conceded that chords and passages do occur in the repertoire which hardly ever sound really satisfactory. There are even ghost notes, played by nobody and even inaudible to the wind group though perfectly clear to the conductor and the delighted strings. The conductor, therefore, if he is to be able to arbitrate successfully, needs a specific understanding

Naturally, the further transposition to concert pitch is effected by the simple drop of a fifth.

In the bass clef, however, the matter is by no means so straightforward: indeed bass clef horn notation presents considerable complexity amid a never-ending controversy. By tradition the notes in the bass clef are transcribed an octave down, so that the transposition to concert pitch becomes a fourth upwards. This corresponds to some extent with the old-style cello writing in which passages in the treble clef were notated an octave higher than actual pitch in order to evoke an instinctive technical response, though in their case this device soon lapsed in favour of the tenor clef which more logically serves the same purpose (see p. 111). But no such alternative solution in the form of an extra clef evolved for the horns, whose lowest notes are played with a different 'embouchure' (or mouth formation) and have a strong vibrant resonance. These are the 'pedal notes', and so deep do they feel to the player that their notation, viz:



is of positive psychological and technical aid to performance.

Most orchestration manuals condemn this notation out of hand and the situation has to be faced that, however popular 'old notation' (as it is called) may continue to be amongst players, 'new notation', whereby the anomaly is corrected, has gradually come to be favoured by composers so that bass clef notes are made to transpose in the same way as those in the treble clef.


But in the end the fact remains that both notations exist side by side in scores and it is not always by any means obvious which octave is intended without pre-knowledge of the relevant composer's normal practice, even (in some extreme examples) from internal evidence of the music.


Generally, however, 'old notation' reveals itself sooner or later in the course of a work since notes are usually encountered which would lie too low to be practical if transposed down instead of up. By deduction, therefore, one may infer that doubt only arises in the player's or conductor's mind when 'new notation' is used, which is another strong and valid argument against it, especially from the player's

existed exceptionally —although this is hotly disputed by some horn specialists—the artistic evidence within the works themselves can often seem extremely doubtful (see, for example, bars 49–50 of the Finale to Haydn's Symphony No. 33).

ing to the limits of their technique. Be this as it may, the omission misled the editors of the Breitkopf *Gesamtausgabe* into allocating the duets to basset horns despite the palpably hornistic style of the writing (see also p. 150).

At the bottom end of the compass it is again Strauss who quietly and unobtrusively takes the horn lower than is usually thought to be wise or safe, writing a bottom *Db* in *Die Schweigsame Frau*, though this

is notated as a pedal F:  for Horn in *Db*, itself an unusual

transposition. Some players can obtain the very bottom C: 

the fundamental of the F horn, but it is somewhat unreliable and in any case appears nowhere in the orchestral repertoire.

4 SEATING POSITION IN THE ORCHESTRA

The traditional place for the horns on the concert platform is on the left (as viewed by conductor and audience). This sets them apart from the heavy brass ensemble which is usually placed on the right.

Recently, however, and especially on the continent, the custom has arisen of moving the horns across to the right together with the trumpets and trombones. But apart from the unfortunate effect, both musically and psychologically, of identifying them positively as brass instruments (see also p. 232 below) this has the additional practical disadvantage of dulling their tone, since their bells are directed into the bodies and clothes of their colleagues seated centrally in the orchestra, instead of allowing the sound to project freely with ringing tone into the hall.

Of the two main seating possibilities:

- (a) 1. 2. 3. 4.¹
or (b) 4. 3. 2. 1.

¹ For the sake of simplicity—for the time being—the standard 4-horn group is assumed. But see pp. 225ff below.

Such examples as the above cannot, however, be taken to suggest that in Berlioz's day four horns were the regular norm in composers' scores. Schubert, for instance, who had indeed used two pairs in the outer movements of his 'Tragic' Symphony No. 4—following perhaps, the example of some of the earlier Mozart symphonies—wrote for only two horns in his B minor and Great C major symphonies although both of these newly introduced a section of three trombones. Indeed this combination of two horns together with three trombones was taken over by Mendelssohn and Schumann in their *Reformation* and C major (No. 2) symphonies respectively and by Liszt in his two piano concertos; it is thereafter occasionally to be found in other composers such as Saint-Saëns. Broadly speaking it is only by the mid- to late-nineteenth century that the 4-horn group became standardized, until Brahms, Dvořák, Tchaikovsky and of course Wagner—to cite only a few key romantic composers—all used four horns as a matter of course in their large scale symphonic works.

Sometimes the employment of two pairs of horns allowed for interesting experimentation in combining the old hand horn with the recently developed chromatic piston instruments. Wagner's use of this contrasted pairing in *Tannhäuser* has already been mentioned above (p. 215), and Schumann's D minor Symphony is another instance, though it has to be admitted that in neither is there any real exploitation of contrast between the two kinds of instrument.

Examples of more than four horns are rare until the advent of Wagner. Mozart's *Serenata Notturna* (No. 8, K. 286) hardly counts as it is for four orchestras, each with a pair of horns specializing in repeated and receding echo effects. Berlioz, whom one might very well have expected to use multiple horns, in the event only does so as part of the greatly inflated wind, brass and percussion sections he introduced into works designed either for outdoor performance (*Symphonie Funèbre et Triomphale*) or for some specialized large scale auditorium such as a cathedral (*Grande Messe des Morts*). Even Wagner allowed himself the self-indulgence of eight horns only when he came to *The Ring*, where he handled the huge ensemble not only as four pairs in the accepted traditional manner, but sometimes as two quartets. Still larger groups are of course to be found in the off-stage bodies of twelve horns heard in *Tannhäuser* and *Tristan* but these again are a special effect used exclusively for fanfares, and are never integrated into the orchestral ensemble.

However isolated an instance they may have been, the eight horns

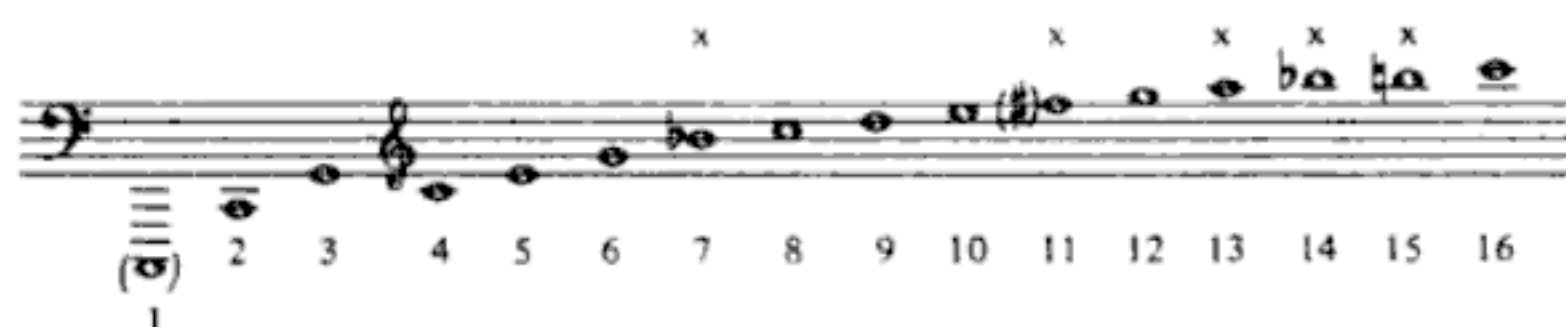
composers have at various times toyed with this layout but fortunately it has never seriously rivalled the standard format. Curiously enough Reger adopted it with a different stylistic aim: that is to say, with his predominantly contrapuntal technique in which drama and colour play a comparatively subsidiary part, his brass section is treated much more like woodwind—so that the logic of pitch which placed the horns below the trumpets became relevant, if for the opposite reason from that of Prokofiev and his followers. Hindemith, in his first full orchestral score, the *Concerto for Orchestra* Op. 38, seems to have been undecided which system to adopt as he changed the order around in the middle of the work. In his subsequent scores, however, he adopted the conventional layout.

Bearing in mind what has been said above on the pair-formation as well as the register specialization of horn players, it follows naturally that the principal (odd numbered) parts will normally correspond as will—beneath them—those of the sub-principals (even numbered). If chordal work is involved the descending order of the players' notes will generally be 1.3.2.4.; if—as often occurs—the horns are playing a melodic line in octaves, the upper line is usually given to the 1st and 3rd in unison, the lower to the 2nd and 4th. These are naturally tendencies, rather than inflexible rules, orchestration being an art and not a science, and it would be folly not to concede that many examples can be found in the repertoire where composers have either forgotten to follow the usual practices or preferred to ignore them. However composers so consistently lay out their horn parts in this manner that they sometimes come to find the technically correct notation (with the 1st and 2nd players on the upper line and the 3rd and 4th on the lower) tiresome to write and pedantic in appearance. Hence scores abound in many pages of which the horn lines are re-aligned, the 2nd and 3rd parts changing staves so that 1 and 3 appear together, as do 2 and 4. While obviously expedient, this can sometimes be found to reflect a little too mechanically on the layout of the parts, and thus lead to oversight, such as when Strauss—in the Introduction to Act 1 of *Rosenkavalier*—forgot how he was organizing his section and absently-minded wrote:

Ex. 206



Ex. 212


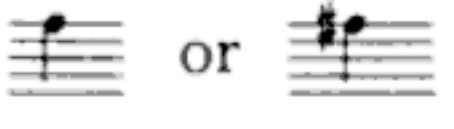


This row, then, gives in fact the range of open notes available to the horn without the use of the valves, irrespective of crook except for two practical considerations: on the one hand the fundamental no. 1, shown in brackets, is hardly available to horns other than those in the higher crooks (see p. 222); and conversely those above no. 12 become more and more inaccessible to horns other than those in lower crooks.

These notes were, of course, the only ones properly available before the introduction of valves during the course of the nineteenth century: the only ones, that is to say, other than those obtained by altering the pitch through the manipulation of the hand in the bell. This, however, affected the quality of tone of each note to a different degree, and only a limited number of such notes were therefore tolerated and written by classical composers. Nevertheless several such 'stopped' notes (see also p. 244) can be found in the eighteenth-century repertoire including notes in the lower register which lie close to an open note and are not unduly exposed in the orchestral texture. Beethoven, though still writing essentially for the open harmonics, can be found to use all sorts of stopped notes for tutti passages. In the 'Eroica' Symphony, for example, the 1st horn plays the whole of the big tune of the finale including:

Ex. 213



clearly  and  must have been sufficiently reliable notes, lying very near the out-of-tune 7th and 11th harmonics (marked with a 'x' in Ex. 212). On the other hand, for the sake of a solo he sacrificed the 1st horn for some 57 bars in the first movement to give the player plenty of time to change to the F crook so as to play the principal theme on the best open notes, knowing that it would have given the most beautiful ringing tone:



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